

## ABSTRACT OF THE DISCLOSURE

A method and apparatus that differentially encodes and decodes data symbols  
5 in dual domains is taught. Data packets are encoded, transmitted, and decoded during  
a plurality of symbol intervals on a plurality of sub-carriers. Encoding and decoding  
are accomplished across both the time and frequency domains such that the minimum  
number of carrier states are employed as reference only states that do not encode a  
symbol of data in and of themselves. A rule of adjacency is followed, both across  
10 time and frequency, so that decorrelation is minimized. Any modulation scheme that  
is applicable to differential encoding and decoding can be utilized. Communication  
systems that couple via radio waves, through metallic conductors, or over fiber optic  
paths can be employed.